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ABSTRACT

Overtime pay was used to encourage staff personnel of a state institution to carry out an intensive around-the-clock program to reduce the self injurious behaviors of a severely retarded and deaf adult. Contingent use of restraints, in conjunction with an intensive program of differential reinforcement of other behavior and differential reinforcement of incompatible behavior, was effective in treating the self injurious behavior. Restraints were applied following face picking after gestures, brief manual restraint and showing the restraints failed to prevent repeated picking. The S participated in half-hour instructional sessions on tasks incompatible with face picking, such as ball play, puzzles, and sign language. Self injurious behavior was significantly reduced and generalization was gradually accomplished. The value of such an intensive, round-the-clock program is discussed. (CL)

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Behavioral Treatment of Severe Self-Injury:
The Importance of Staff Selection in an Institutional Environment

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A 34-year-old, deaf, severely retarded resident of a state institution, whom we will call David, began to pick the skin from his face in the late summer of 1981. By October there was a high rate of picking, and severe tissue damage was inflicted on David's face. The epidermal tissue on most of his nose and a portion of the left nostril had been picked away, and the damaged area had expanded to much of his left cheek and a strip of skin above his eye.

During the period 1960 to 1971, David had gradually picked the tissue from one ear until the entire ear was gone. Since then he had not engaged in self-injury except for the ingestion of metallic objects and picking at the surgical scars which resulted from operations to remove those objects. In addition to pica (which proved not to be a problem over the course of treatment), David had other problems which were related to his SIB. These problems included frequently wetting his face in and drinking from the toilet, chronic constipation, and skin irritation. The treatment of these problems probably contributed to the elimination of SIB but will not be discussed because of time limitations. Psychotropic medication changes over the course of treatment did not appear to be related to the decrease in SIB.

David's extreme strength and flexibility enabled him to break or escape from conventional restraining devices. Restraints were custom-made by Weaver Orthopedic Appliance, Inc., in Alexandria, Virginia, at a cost of \$550. They consisted of a chest harness attached to polypropylene arm tubes hinged at the elbows, so that David could use his hands freely but could not reach his face. The harness was fastened in the back by straps. David required three fittings because he was able to escape the first two models.

Between October 1981 and February 1982, a differential reinforcement program, coupled with structured recreational activities, was implemented sporadically on the home living unit, sometimes by staff assigned to work on overtime with David on a one-on-one basis. Data kept by unit staff indicated that some facial picking occurred on virtually every waking hour. Time sample data collected in January and February confirmed a high rate of picking and earlier observations that the antecedents for the most intense self-injury were tasks which David at other times engaged in willingly. If left alone, David picked at a lower rate and with less intensity.

Restraints were obtained at the end of February, and a new treatment program was begun. The program psychologist worked with David in one or two 30 to 60 minute sessions over eight of the next nine days. Programmatic procedures were piloted and activities which required David to use his hands and were therefore incompatible with facial picking were identified. Food reinforcement was frequently given for task performance, and physical guidance was used to return David to task when he attempted

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to run away. When David attempted to pick, gestures and momentary manual restraint were used to prevent further picking. Repeated attempts to pick resulted in showing David the restraints; if picking continued, restraints were applied for 30 to 60 minutes. During this nine-day period restraints were actually applied three times; each time David struggled to avoid their application, and 3 or 4 men were required to put the restraints on. In the last few days of this phase of treatment, staff who would work with David upon transfer to a small treatment unit were trained in these sessions on the home living unit. In these sessions, the rate of picking was 1.2 per 15 minutes, compared to 38 per 15 minutes in the earlier time samples. It was originally intended that David wear the restraints continuously except for several high-density reinforcement periods each day, with the wearing of restraints to be faded out over time. Because of this much lower rate of picking, however, it was decided to continue to apply the restraints only when picking persisted after gestural prompts were given.

In early March David was transferred to a treatment unit which had two or three staff working with up to seven clients. Treatment staff were trained to implement the behavior program which consisted of four elements: 1) Food reinforcement every half hour unless facial picking occurred during that period. 2) Constant surveillance. When he was sleeping David was not allowed to cover his face with a blanket, since it was clear that he picked his face when he did that. 3) Three or more half-hour instructional sessions on each day and evening shift (but not night shift). Tasks included simple sign language as well as ball play, puzzles, housekeeping tasks, and other activities which were incompatible with face picking. High density food and social reinforcement was provided in these sessions. 4) Application of restraints when gestures, brief manual restraint, and showing the restraints failed to prevent repeated picking. Restraints were applied for a minimum of 30 minutes, with release contingent upon 5 minutes of calm behavior.

Documentation reflected restraint use, task performance during scheduled DRI sessions, and other information, including whether or not David picked his face during each hour. This dependent variable was chosen for its simplicity for observing and recording by direct care staff and because, given the extreme damage which David could inflict on himself in only a few seconds, any picking during a given hour was ecologically significant.

Insert Figure about here

The average number of hours during which any SIB occurred is shown in the figure for each week of treatment. Restraints were used a total of 17 times, not counting the three earlier applications in the home unit. Simply picking up and showing David the restraints became increasingly effective in controlling his SIB, but I have no data on how often this was done. Restraints were used only once after week nine.

The rate of SIB was relatively high through the first six weeks, though much lower than it had been before this treatment was begun. It was quickly confirmed that one-on-one staff coverage was required to effectively carry out the program. This could not be reliably achieved in the treatment unit because of the varied demands on the staff there. Over the first four weeks, there were staff coverage problems, as David went from the treatment unit to another living unit and finally to the institution's infirmary at the beginning of week 5, where a consistent one-on-one coverage was obtained.

Except for one day, restraints were not used from the start of week 4 until week 6; first David broke them, and then when they were used again a doctor prohibited their use because David had slightly hurt his wrist in attempting to escape the restraints. Note that during the period without restraints there are higher rates of SIB.

Although all staff were trained before they worked with David, it became increasingly clear from spot checks on staff performance, from the data forms on each shift, and from reports from nursing staff that some direct care staff were both reliable in carrying out program procedures and in obtaining a reduction in self-injury, and some were not. It was also noted that when a staff member worked with David for the first time or two, SIB increased. Efforts were made in weeks 6 and 7 to assign only those staff who appeared to be effective and to exclude inexperienced staff and those staff known to exacerbate the problem. It should be noted that working on this program was voluntary. Institutional staff signed up to work overtime. Overtime pay, which was one and a half times the regular pay rate, ensured that many staff were interested in working with David. At the beginning of week 8, administrative support was obtained to limit staff assignment to eight selected counselors, with three acceptable substitutes if none of the eight could be obtained. Note the marked decrease in SIB from this point (week 8) through week 17. Over this period, David spent increasing amounts of time outside the hospital with assigned staff, and his face began to heal.

In week 18 coverage could not be consistently made with the identified staff for the first time because several of them went on vacation during that week. This unintended reversal of the staff assignment variable resulted in a big increase in the rate of SIB, and it was of such severity that much of the healed area was torn away. Consistent coverage with selected staff was again obtained in week 19, and the SIB was again reduced.

David was transferred from the hospital to a new living unit at the end of week 20. The one-on-one coverage continued, with generalization to regular cottage staff gradually being accomplished. Data sheets were no longer collected after week 24, although progress noted in David's record attest to the continued improvement. At this point, the face was again fairly well healed and the topography of facial picking was changed dramatically; David now at times put his hands to his face, as if to pick, or rubbed his face, but he did not inflict damage. The use of restraints was no longer even signalled. One-on-one staff coverage was gradually faded out until it was stopped on the day and night shifts in the eighth month and on the evening shift in the ninth month. By this time David was well integrated into the routine of the new living unit, and he participated in several off-unit programs.

David's face has healed, leaving a pattern of scars, and he has not engaged in any significant self-injurious behavior to date, two years since treatment began. Other maladaptive behaviors—putting his face in the toilet, pica, sticking his finger in his nose, and other inappropriate social behaviors—were also significantly reduced or eliminated. His mother, who has always visited David frequently, has written the superintendent of the institution to express her pleasure that David is happier than she has ever seen him.

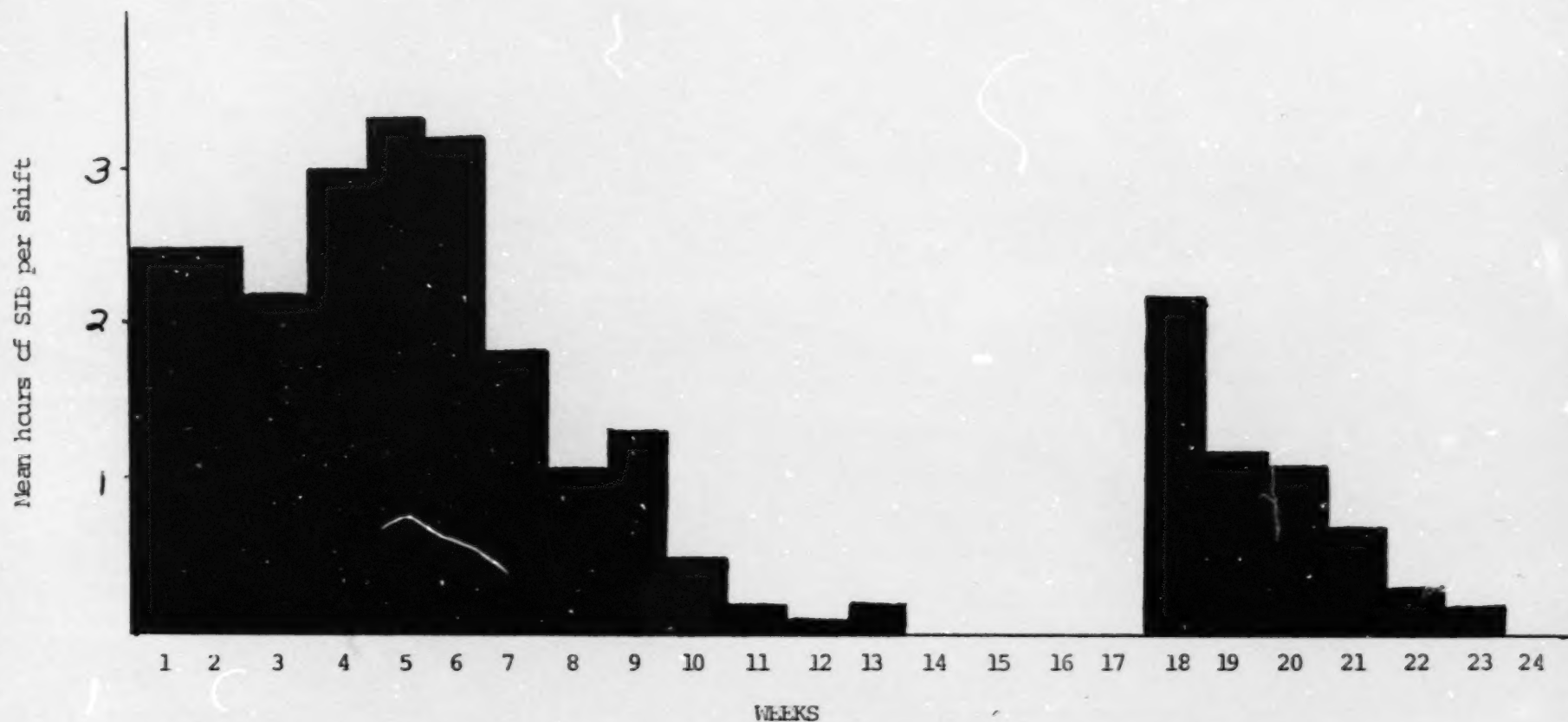
The contingent use of restraints, in conjunction with DRO and DRI procedures, proved to be an effective treatment in this case, as it was in studies reported by Hamilton et al. (1967), Rapoff et al. (1980), and others. Contingent use of restraints is reviewed by Dorsey et al. in a 1982 JABA article. Restraints were judged to be a necessary adjunct to DRI procedures in this case because David was adept at escaping required activities; escape from those activities resulted in increases in the intensity and frequency of his SIB. The necessity for restraints is supported by the increased rate of SIB during the 3-week period when restraints were not in use.

In an institutional context, round-the-clock behavioral programs must be carried out by direct care staff. While training of staff in program procedures is important, it is not enough to get effective implementation of intensive procedures. We agree with Ziamik and Bernstein (1982) that the manipulation of environmental variables is more important than staff training for changing staff performance. We suggest that the use of budgeted overtime money as an incentive for effective performance

of "one-on-one" intensive behavioral programs can be cost-effective. Before this treatment, considerable money for overtime one-on-one coverage had already been spent without any benefit to the client. The effectiveness of any behavior program obviously depends on how well individual staff carry out the procedures and perhaps less obviously on other factors subsumed under the ambiguous term "rapport." Program implementers must be held accountable for their performance. Staff who prove to be effective should be selected and reinforced so that a relatively small number are motivated to consistently implement the program. To accomplish this, psychologists and administrators must work together.

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Mean number of hours during which any self-injurious behavior occurred on an 8-hour shift during the first six months of treatment.